Claims

[c1] 1.A method for making an optical disk, comprising:

disposing a first semi-reflective data layer on a first resin layer, wherein the first resin layer has light transmission at a desired reading wavelength of greater than about 60%;

disposing a top side of a first fully reflective data layer on a side of said first semi-reflective data layer opposite said first resin layer, wherein reflectivity of the first fully reflective data layer and the first semi-reflective data layer is individually about 18% to about 30%, and wherein a difference in the reflectivity between the first fully reflective data layer and the first semi-reflective data layer is less than about 5%;

disposing a separating layer between said first fully reflective data layer and said first semi-reflective data layer;

disposing a second resin layer on a bottom side of said first fully reflective data layer; and

adding color to at least a portion of the optical disk.

[c2] 2.The method according to Claim 1, further comprising disposing a bonding layer between the first fully reflective data layer and the second resin layer, and disposing a second fully reflective data layer between the bonding layer and the second resin layer, wherein a reflectivity of the second fully reflective data layer is about 45% to about 85%.

[c3] 3.The method according to Claim 1, further comprising disposing a second separating layer between the second fully reflective data layer and the second resin layer, and disposing a second semi-reflective data layer between the second separating layer and the second resin layer, wherein a difference in reflectivity between the second fully reflective data layer and the second semi-reflective data layer is less than about 5%; and

wherein at least one layer selected from the group consisting of the first separating layer, the first resin layer, the second separating layer and the second resin layer is colored.

[c4] 4.The method according to Claim 1, wherein the difference in reflectivity is less than or equal to about 4%.

[c5] 5. The method according to Claim 4, wherein the difference in reflectivity is about 0.5% to about to about 3%.

[c6] 6.The method according to Claim 5, wherein the difference in reflectivity is about 1% to about to about 3%.

[c7] 7.The method according to Claim 1, wherein adding color comprises adding a colorant to the separator layer, a top coat, the first resin layer, or a combination comprising at least one of the foregoing.

[c8] 8.The method according to Claim 1, wherein said colorant is selected from the group consisting of anthraquinones, perylenes, perinones, indanthrones, quinacridones, xanthenes, oxazines, oxazolines, thioxanthenes, indigoids, thioindigoids, naphtalimides, cyanines, xanthenes, methines, lactones, coumarins, bis-benzoxaxolylthiophenes (BBOT), napthalenetetracarboxylic derivatives, monoazo and disazo pigments, triarylmethanes, aminoketones, bis(styryl)biphenyl derivatives, and the like, as well as combinations comprising at least one of the foregoing colorants.

[c9] 9.The method according to Claim 1, wherein said resin is selected from the group consisting of amorphous thermoplastic, crystalline thermoplastic, semi-crystalline thermoplastic, thermoset, or a combination comprising at least one of the foregoing resins.

[c10] 10.The method according to Claim 9, wherein said resin is selected from the group consisting of polyetherimides, polyetheretherketones, polyimides, polyvinyl chloride, polyolefins, polyesters, polyamides, polysulfones, polyimides, polyether imides, polyether sulfones, polyphenylene sulfides, polyether ketones, polyether ether ketones, ABS resins, polystyrenes, polybutadiene, polyacrylates, polyacrylonitrile, polyacetals, polyphenylene ethers, ethylene-vinyl acetate copolymers, polyvinyl acetate, liquid crystal polymers, ethylene-tetrafluoroethylene copolymer, aromatic polyesters, polyvinyl fluoride, polyvinylidene fluoride, polyvinylidene chloride, tetrafluoroethylene fluorocarbon copolymers, epoxy, phenolic, alkyds, polyester, polyimide, polyurethane, polysiloxanes, polysilanes, bis-maleimides, cyanate esters, vinyl, benzocyclobutene resins, and blends, copolymers, reaction products, and composites comprising at least one of the foregoing resin.

[c11] 11.The method according to Claim 1, wherein said resin comprises polycarbonate.

[c12] 12.An optical disk, comprising:

a first fully reflective data layer, a first separating layer disposed on a top side of the first fully reflective data layer, a first semi-reflective data layer disposed on a side of the separating layer opposite the first fully reflective data layer, a first resin layer disposed on an upper side the first semi-reflective data layer opposite the separating layer, and a second resin layer disposed on a bottom side of said first fully reflective data layer;

wherein the first outer resin layer has light transmission at a desired reading wavelength of greater than 60%;

wherein a reflectivity of the first fully reflective data layer and the first semi-reflective data layer is individually about 18 to about 30%;

wherein a difference in the reflectivity between the first fully reflective data layer and the first semi-reflective data layer is less than about 5%; and

wherein at least a portion of the optical disk is colored.

[c13] 13.The optical disk according to Claim 12, wherein the first outer resin layer is colored.

[c14] 14.The optical disk according to Claim 12, wherein the first separating layer is colored.

[c15] 15.The optical disk according to Claim 12, wherein the first separating layer comprises a plurality of intermediate layers.

[c16] 16.The optical disk according to Claim 12, wherein said first resin layer and said second resin layer have a thickness of about 0.4 mm to about 1.0 mm.

[c17] 17.The optical disk according to Claim 16, wherein thickness is about 0.5 mm to about 0.7 mm.

[c18] 18.The optical disk according to Claim 12, wherein the difference in reflectivity is less than or equal to about 4%.

[c19] 19. The optical disk according to Claim 18, wherein the difference in reflectivity is about 0.5% to about to about 3%.

[c20] 20.The optical disk according to Claim 19, wherein the difference in reflectivity is about 1% to about to about 3%.

[c21] 21.The optical disk according to Claim 12, further comprising a bonding layer disposed on between the first fully reflective data layer and the second resin layer, and a second

fully reflective data layer disposed between the bonding layer and the second resin layer, wherein a reflectivity of the second fully reflective data layer is about 45% to about 85%.

[c22] 22.The optical disk according to Claim 21, further comprising a second separating layer disposed between the second fully reflective data layer and the second resin layer, and a second semi-reflective data layer disposed between the second separating layer and the second resin layer;
wherein a difference in the reflectivity between the second fully reflective data layer and the second semi-reflective data layer is less than about 5%; and
wherein at least one layer selected from the group consisting of the first separating layer, the first resin layer, the second separating layer and the second resin layer is colored.

[c23] 23.The optical disk according to Claim 12, wherein said colorant is selected from the group consisting of anthraquinones, perylenes, perinones, indanthrones, quinacridones, xanthenes, oxazines, oxazolines, thioxanthenes, indigoids, thioindigoids, naphtalimides, cyanines, xanthenes, methines, lactones, coumarins, bis-benzoxaxolylthiophenes (BBOT), napthalenetetracarboxylic derivatives, monoazo and disazo pigments, triarylmethanes, aminoketones, bis(styryl)biphenyl derivatives, and the like, as well as combinations comprising at least one of the foregoing colorants.